

REMARKS

I. Claim Status

Claims 3 and 4 have been amended to delete the structure formula on the right as the donor atom being an oxygen atom or a sulfur atom only requires one R group (i.e., R¹) to establish its proper valency. As a result of the deletion of the structure on the right, reference to R² has subsequently been deleted from claims 3 and 4.

Claim 5 has been amended to delete the structure formula on the left as the donor atom being a phosphorous atom requires two R groups (R¹ and R²) to establish its proper valency.

Claims 8, 10, 12 and 13 have been amended to clarify the structural composition of the donor group as well as the specific donor atom of the donor group that furnishes the free electron pair. Support for this amendment is found in paragraph [0072] of the published patent application (i.e., US 2005/0009109). In addition, claims 8, 12 and 13 have been amended to exclude compounds wherein when the donor atom is a nitrogen atom, R¹-R⁴ are not alkyl groups or fluoroalkyl groups.

Pursuant to 37 C.F.R. §1.118(a), Applicants respectfully submit that the above amendments do not introduce any new material into the application. With the present amendments, 7 claims are pending in the present case, namely, claims 3-5, 8, 10, 12 and 13.

II. Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 3-5, 8, 10 and 12-13 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. This rejection is respectfully traversed for the following reasons.

Applicants have amended the above claims to address the issues raised by the Examiner. In particular, claim 3 and 4 as well as claim 5 have been amended to correct valency. As presently amended, claims 3 and 4 as well as claim 5 are definite with regard to the structural composition of the donor group.

As to the structural composition and types of bond of A as well as the nature of linkage of A with the donor group D, Applicants submit that the structure formula presented in the above claims clearly demonstrates such requested information. It is also noted that since A is a moiety having at least one multiple bond and linking both the donor group D and the 2-dicyanomethylen-3-cyano-2,5-dihydrofuran group (DCDHF, acceptor group), one suitable A group can vary from another suitable A group as long as they both have at least one multiple bond and are capable of linking the claimed donor group and the acceptor group. Applicants believe that the structure formula presented in the above claims is a reasonable generalization of all compounds that share the claimed structural features, and that it would not be fair to be required to list out all specific structural compositions and types of bond of A for all suitable A groups. In fact, the instant specification provides multiple examples of claimed fluorophore compounds comprising different kinds of A groups. See paragraphs [0076]-[0107] and corresponding figures of the instant specification.

Claims 8, 10, 12 and 13 have been amended to clarify the structural composition of the donor group as well as the specific donor atom of the donor group that furnishes the free electron pair. As to the structural composition and types of bond of A as well as the nature of linkage of A with the donor group D, Applicants submit that the above arguments presented with regard to claims 3-5 also apply to claims 8, 10, 12 and 13.

Applicants further note that the Examiner's reference to claim 14 at the bottom of page 3 of the present Office Action appears to be in error as claim 14 was previously cancelled during the prosecution.

In view of the above amendments and remarks, Applicants submit that the claims as presently amended are now definite and that the present rejection is now overcome.

III. Claim Rejections - 35 U.S.C. § 102(a)

Claims 12 and 13 are rejected under 35 U.S.C. §102(a) as allegedly being anticipated by Hou et al. (Applied Physics Letters 2003, Vol. 82, No. 20, pages 3385-3387). Applicants respectfully traverse this rejection.

Claims 12 and 13 have been amended to clarify the structural composition of the donor group as well as the specific donor atom of the donor group that furnishes the free electron pair. In particular, when the donor atom is an oxygen atom or a sulfur atom, the claimed fluorophore compound has the structure formula of (I), whereas when the donor atom is a nitrogen atom or a phosphorous atom, the claimed fluorophore compound has the structure formula of (II). Claims 12 and 13 have also been amended to add a limitation that when the donor atom is a nitrogen atom, R¹-R⁴ are not alkyl groups.

Hou et al. discloses a compound wherein a nitrogen atom furnishes free electron pair, and a benzene ring provides at least one multiple bond and links both the nitrogen atom (donor group) and a tricyano-substituted furan group (acceptor group). See FIG. 1 of Hou et al. Furthermore, Hou et al. discloses that the donor group is linked to two alkyl groups and that the two R groups attached to the furan ring of the acceptor group are both alkyl groups (see Table 1.)

Hou et al. does not disclose a compound wherein the donor group comprises oxygen, sulfur or phosphorous atom. Nor does Hou et al. disclose a compound wherein when the donor atom is a nitrogen atom, the groups that are linked to the nitrogen atom and the two R groups that are attached to the furan ring of the acceptor group are not alkyl groups.

Applicants submit that claims 12 and 13 as presently amended are directed to different compounds than those disclosed by Hou et al., since the present compounds as claimed either comprises a donor group having an oxygen atom, a sulfur atom or a phosphorous atom as the donor atom to furnish free electron pair, or comprises a donor group having a nitrogen atom as the donor atom, and the donor group and the furan ring of the acceptor group are linked to non-alkyl groups. Consequently, Hou et al. does not anticipate claims 12 and 13 as presently amended. Accordingly, Applicants respectfully request that the present rejection be withdrawn.

Claims 8, 12 and 13 are rejected under 35 U.S.C. §102(a) as allegedly being anticipated by Zhang et al. (U.S. Pat. No. 6,348,992). Applicants respectfully traverse this rejection.

Claims 8, 12 and 13 have been amended to clarify the structural composition of the donor group as well as the specific donor atom of the donor group that furnishes the free electron pair. In particular, when the donor atom is an oxygen atom or a sulfur atom, the claimed fluorophore compound has the structure formula of (I), whereas when the donor atom is a nitrogen atom or a phosphorous atom, the claimed fluorophore compound has the structure formula of (II). Claims 8, 12 and 13 have also been amended to add a limitation that when the donor atom is a nitrogen atom, R^1 - R^4 are not alkyl groups or fluoroalkyl groups.

Zhang et al. disclose a compound comprising an electron donor group, an electron acceptor group and a ring-locked bridge structure between the electron donor group and the electron acceptor group. In particular, the electron donor group comprises a nitrogen atom which furnishes the electron (*see* FIG. 14 of Zhang et al), and the electron acceptor group is a cyanofuran acceptor group (*see* FIG. 11 of Zhang et al.). Zhang et al. does not disclose a compound wherein the donor group comprises an atom of oxygen, sulfur or phosphorous as the donor atom to furnish free electron pair.

The Examiner states that compound of FIG. 10 (bottom) of Zhang et al. anticipates instant claim 8 and compounds of FIG. 2 (bottom) and FIG. 4 of Zhang et al. anticipate instant claims 12 and 13. In response, Applicants submit that in FIG. 10 (bottom) of Zhang et al., a nitrogen atom furnishes free electrons and a bridge structure comprising a bithiophene ring links the donor and acceptor groups. For its donor and acceptor groups, this compound has alkyl groups linked thereto. Clearly, Zhang's compound as illustrated in FIG. 10 is excluded from instant claim 8 as presently amended.

In FIG. 2 (bottom) of Zhang et al., the donor group comprising a nitrogen atom which furnishes free electrons and the acceptor group comprises an alkyl group and a fluoroalkyl group. Clearly, Zhang's compound as illustrated in FIG. 2 (bottom) is excluded from instant claim 12 or 13 as presently amended.

Further in FIG. 4 of Zhang et al., the donor group comprises a nitrogen atom which furnishes free electrons and the acceptor group comprises two alkyl groups. Similarly, Zhang's compound as illustrated in FIG. 4 is excluded from instant claim 12 or 13 as presently amended.

In view of the above amendments and remarks, Applicants respectfully submit that Zhang et al. does not anticipate claims 8, 12 and 13 as presently amended and accordingly, request that the present rejection be withdrawn.

A request for a one-month extension of time with authorization to charge the appropriate fees to Howrey LLP Deposit Account No. 08-3038/12665.0029.NPUS00 is filed with this paper. Should any other fee be required for any reason, the Commissioner is authorized to deduct said fees from Howrey LLP Deposit Account No. 08-3038/12665.0029.NPUS00.

Respectfully submitted,



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Date: May 9, 2006